

Amendments to the Claims

1. (Currently amended) A contact lens for use on an eye, the lens comprising:

a lens body having a posterior face, an anterior face spaced apart by a distance from the posterior face and configured to accommodate movement of an eyelid over the anterior face of the lens body when the contact lens is placed on an eye, a thickness defined as the distance between the posterior face and the anterior face, an a central optical zone, a curved peripheral portion surrounding the optical zone, and a peripheral portion and a peripheral edge;

a plurality of radially extending microchannels defined in the posterior face of the lens body and having a depth less than about 90% of the thickness and a maximum width less than about 500 microns, the radially extending microchannels extending from the peripheral edge of the lens body through at least a substantial portion of the curved peripheral portion, the microchannels sized and adapted to promote effective tear fluid exchange between an exposed surface of the eye and a surface of the eye covered by the lens body without substantially interfering with optical zone function.

2. (Original) The lens of claim 1 wherein the plurality of microchannels extend across the peripheral portion with an absence of microchannels within the optical zone.

3. (Currently amended) The lens of claim 1 wherein the plurality of microchannels have a decreasing taper in terms of

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at least one of a width and a depth of the plurality of microchannels.

4. (Original) The lens of claim 1 wherein the plurality of microchannels are substantially equidistantly spaced apart and are sized and arranged to promote formation of a substantially continuous tear film between a lens-eye interface.

5. (Original) The lens of claim 1 wherein the plurality of microchannels comprise about 5 to about 200 microchannels.

6. (Original) The lens of claim 1 wherein the plurality of microchannels comprise about 10 to about 100 microchannels.

7. (Original) The lens of claim 1 wherein the plurality of microchannels are equidistantly spaced apart.

8. (Original) The lens of claim 1 wherein the plurality of microchannels comprise microchannels spaced apart by between about 5 degrees and about 30 degrees.

9. (Original) The lens of claim 1 wherein the plurality of microchannels comprise microchannels having a width of less than about 5 degrees.

10. (Original) The lens of claim 1 wherein the plurality of microchannels comprise microchannels having a width in a range of about 0.5 degrees to about 2 degrees.

11. (Original) The lens of claim 1 wherein the plurality of microchannels comprise microchannels having a maximum width in a range of about 50 microns to about 500 microns.

12. (Original) The lens of claim 1 wherein the plurality of microchannels comprise about 10 to about 200 microchannels, each microchannel having a width of less than about 5 degrees and a depth of between about 0.1 microns and about 50 microns.

13. (Original) The lens of claim 1 wherein the microchannels have a maximum depth in a range of about 0.1% to about 90% of a thickness of the lens body.

14. (Original) The lens of claim 1 wherein the microchannels have a maximum depth in a range of about 10% to about 80% of a thickness of the lens body.

15. (Original) The lens of claim 1 wherein the plurality of microchannels include first microchannels which are defined only in the peripheral portion and second microchannels which are defined at least partially in the optical zone.

16. (Original) The lens of claim 15 wherein the second microchannels are longer than the first microchannels.

17. (Original) The lens of claim 1 wherein the plurality of microchannels include a first set of microchannels and a second set of microchannels, and the first set and second set are in fluid communication with one another.

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18. (Original) The contact lens of claim 17 wherein the plurality of microchannels further include a substantially annular microchannel defined between the first set and the second set.

19. (Currently amended) A contact lens for use on an eye, the lens comprising:

a lens body having a posterior face including a first annular portion, a second annular portion circumscribing the first annular portion, and a peripheral edge circumscribing the second annular portion;

a first set of microchannels defined within the first annular portion of the posterior face and having a depth less than about 90% of a thickness of the lens body and having a maximum width less than about 500 microns; and

a second set of radially extending microchannels defined within the second annular portion of the posterior face and having a depth less than about 90% of the thickness of the lens body and having a maximum width less than about 500 microns, the radially extending microchannels extending from the peripheral edge of the lens body towards the first annular portion of the lens body, wherein the first set and the second set are in fluid communication with one another.

20. (Currently amended) The lens of claim 19 herein wherein at least one of the first set of microchannels and the second set of microchannels is radially extending.

21. (Original) The lens of claim 19 further comprising a substantially annular microchannel defined between the first set and the second set.

22. (Original) The contact lens of claim 19 wherein the first set of microchannels include relatively fewer microchannels than the second set of microchannels.

23. (Original) The lens of claim 19 wherein the lens body includes an optical zone and the first set of microchannels extend outward from an edge of the optical zone toward the peripheral edge.

24. (Currently amended) The lens of claim 19 23 wherein there is an absence of microchannels in the optical zone.

25. (Currently amended) A contact lens for use on an eye, the lens comprising:

a lens body having a posterior face, an anterior face spaced apart by a distance from the posterior face and configured to accommodate movement of an eyelid over the anterior face of the lens body when the contact lens is placed on an eye, a thickness defined as the distance between the posterior face and the anterior face, an optically powered optical zone, an optical zone edge, a curved peripheral portion surrounding the optical zone, a peripheral portion and a peripheral portion edge;

a plurality of microchannels extending substantially along radii of the peripheral portion and having a depth less than about 90% of the thickness of the lens body and having a maximum

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width less than about 500 microns, the plurality of
microchannels extending from the peripheral edge of the lens
body through at least a substantial portion of the curved
peripheral portion of the lens body towards the optical zone,
the plurality of microchannels being sized and adapted to
promote effective tear fluid exchange between an exposed surface
of the eye and a surface of the eye covered by the lens body
without substantially interfering with optical zone function.

26. (Original) The lens of claim 25 wherein the plurality of microchannels extend across the peripheral portion with an absence of microchannels within the optical zone.

27. (Original) The lens of claim 25 wherein the plurality of microchannels have a decreasing taper in terms of at least one of a width and a depth of the plurality of microchannels.

28. (Original) The lens of claim 25 wherein the plurality of microchannels have a decreasing taper in terms of at least one of a width and a depth of the plurality of microchannels toward a center of the optical zone.

29. (Original) The lens of claim 25 wherein the plurality of microchannels comprise equidistantly spaced apart microchannels, each microchannel having a width of less than about 5 degrees and a maximum depth in a range of about 0.1 microns to about 50 microns.

30. (Original) The lens of claim 25 wherein the plurality of microchannels comprise about 5 to about 200 microchannels.

31. (Original) The lens of claim 25 wherein the microchannels have a maximum depth in a range of about 10% to about 80% of a thickness of the lens body.

32. (Currently amended) A contact lens for use on an eye, the lens comprising:

a lens body having a posterior face, an anterior face spaced apart by a distance from the posterior face and configured to accommodate movement of an eyelid over the anterior face of the lens body when the contact lens is placed on an eye, a thickness defined as the distance between the posterior face and the anterior face, a curved peripheral portion surrounding an optical zone, and a peripheral edge;

a plurality of microchannels defined in the posterior face of the lens body and having a depth less than about 90% of the thickness of the lens body and having a maximum width less than about 500 microns, the microchannels extending from the peripheral edge of the lens body through a substantial portion of the curved peripheral portion towards the optical zone, the plurality of microchannels being sized and arranged to promote formation of a substantially continuous, freely flowing tear film between a lens-eye interface when the lens is worn on the eye that is at least about 50% of the degree of flow of a free flowing tear film of an eye not associated with a contact lens.

33. (Original) The lens of claim 32 wherein the plurality of microchannels comprise radially extending microchannels.

34. (Original) The lens of claim 32 wherein the plurality of microchannels comprise microchannels spaced apart by between about 5 degrees and about 30 degrees.

35. (Original) The lens of claim 32 wherein the plurality of microchannels comprises equidistantly spaced apart microchannels, each microchannel having a width of less than about 5 degrees and a depth of between about 0.1 microns and about 50 microns.

36. (Original) The lens of claim 32 wherein the plurality of microchannels extend across the peripheral portion with an absence of microchannels within the optical zone.

37. (Original) The lens of claim 32 wherein the plurality of microchannels have a decreasing taper in terms of at least one of a width and a depth of the plurality of microchannels.

38. (Original) The lens of claim 32 wherein the plurality of microchannels comprise about 10 to about 100 microchannels.

39. (Original) The lens of claim 32 wherein the plurality of microchannels comprise microchannels having a maximum width in a range of about 50 microns to about 500 microns.

40. (Original) The lens of claim 32 wherein the microchannels have a maximum depth in a range of about 10% to about 80% of a thickness of the lens body.

41. (New) A contact lens for use on an eye, the lens comprising:

a lens body having a posterior face, an optical zone, a peripheral portion and a peripheral edge;

a plurality of radially extending microchannels defined in the posterior face of the lens body and having a depth less than about 90% of a thickness of the lens body and having a maximum width less than about 500 microns, the microchannels sized and adapted to promote effective tear fluid exchange between an exposed surface of the eye and a surface of the eye covered by the lens body without substantially interfering with optical zone function, wherein the plurality of microchannels include first microchannels which are defined only in the peripheral portion and second microchannels which are defined at least partially in the optical zone.

42. (New) The lens of claim 41 wherein the second microchannels are longer than the first microchannels.

43. (New) A contact lens for use on an eye, the lens comprising:

a lens body having an optical zone, a posterior face including a first annular portion, a second annular portion circumscribing the first annular portion, and a peripheral edge circumscribing the second annular portion;

a first set of microchannels defined within the first annular portion of the posterior face and extending outward from an edge of the optical zone toward the peripheral edge, the first set of microchannels having a depth less than about 90% of

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Claim 19
a thickness of the lens body and having a maximum width less than about 500 microns; and

Claim 20
a second set of microchannels defined within the second annular portion of the posterior face and having a depth less than about 90% of a thickness of the lens body and having a maximum width less than about 500 microns, wherein the first set and the second set are in fluid communication with one another.

44. (New) The lens of claim 19 wherein there is an absence of microchannels in the optical zone.

45. (New) The lens of claim 1, wherein the microchannels terminate in the peripheral portion of the lens body.

46. (New) The lens of claim 1, wherein the microchannels extend to the optical zone of the lens body.

47. (New) The lens of claim 1, wherein the microchannels extend into the optical zone of the lens body.
